DOCUMENT RESUME

ED 227 769 HE 016 008

| | |
|---|---|
| TITLE | Trends in Public Higher Education Enrollment. A Report on Enrollment Projections, Management, and Development by the Staff of the California Postsecondary Education Commission. |
| INSTITUTION | California State Postsecondary Education Commission, Sacramento. |
| PUB DATE | Jul 32 |
| NOTE | 59p. |
| AVAILABLE FROM | California Postsecondary Education Commission, 1020 Twelfth Street, Sacramento, CA 95814. |
| PUB TYPE | Reports - Descriptive (141) |
| EDRS PRICE | MF01/PC03 Plus Postage. |
| DESCRIPTORS | *College Students; *Community Colleges; Comparative Analysis; Enrollment Influences; *Enrollment Projections; *Higher Education; Improvement Programs; National Surveys; Public Education; Research Methodology; *State Colleges; State Surveys; State Universities |
| IDENTIFIERS | *California |

ABSTRACT

Information on higher education enrollment projections for the nation and for California is presented and California's enrollment forecasts are evaluated. In addition, enrollment development strategies are examined. The assumptions on which each of the following organizations or individuals base their national enrollment projections are briefly reviewed: National Center for Education Statistics, Howard Bowen, Joseph Froomkin, Stephen Dresch, Richard Freeman, Allan Cartter, Carnegie Foundation, Carnegie Council, and the American Council on Education. These national studies provide a wide variety of projections about future enrollments. Specific duties of the California Population Research Unit, the official demographic agency, are identified, and projection methods are reviewed for California community colleges, California State University, and the University of California. Attention is also directed to deficiencies in California's enrollment forecasting process. The following enrollment development strategies are briefly considered: increasing high school retention and graduation rates, increasing the college-going rate, increasing credentialing by testing, improving college retention, encouraging transfer from community colleges to universities, and increasing adult enrollments. (SW)

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The Commission consists of 15 members. Nine represent the general public, with three each appointed by the Speaker of the Assembly, the Senate Rules Committee, and the Governor. The other six represent the major educational systems of the State.

The Commission holds regular public meetings throughout the year at which it takes action on staff studies and adopts positions on legislative proposals affecting postsecondary education. Further information about the Commission, its meetings, its staff, and its other publications may be obtained from the Commission offices at 1020 Twelfth Street, Sacramento, California 95814; telephone (916) 445-7933.

# TRENDS IN PUBLIC HIGHER EDUCATION ENROLLMENT

A REPORT ON ENROLLMENT PROJECTIONS,
MANAGEMENT, AND DEVELOPMENT BY THE STAFF OF THE
CALIFORNIA POSTSECONDARY EDUCATION COMMISSION
1020 TWELFTH STREET, SACRAMENTO, CALIFORNIA 95814

Commission Report 82-26

July 1982

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# CHAPTER ONE

## NATIONAL ENROLLMENT PROJECTIONS

Many educators and demographers in recent years have engaged in an activity essential to planning--forecasting college and university enrollments through the 1980s. They have differed widely on their assumptions, however; consequently the results of their forecasts are widely inconsistent.

The greatest consistency in their projections is their reliance on estimates of the college-age population as published by the U.S. Bureau of the Census as the beginning of their forecasts. The nation's 18-year olds in the year 2000 are now being born, and although their numbers will hinge on unpredictable events over the next 18 years, ranging from changes in America's immigration policies to catastophic disasters, these numbers can now be estimated primarily on the basis of mortality rates.

Figure 1 shows the estimates and projections of America's 18- to 21-year olds and 18- to 24-year olds from 1960 through 2000 as published by the Bureau of the Census. As can be seen, the number of traditional college-age youth aged 18 to 21 has already begun to decline from its 1979 high of 17,156,000 and is expected to reach a low of some 12,971,000 in 1994 before climbing again to nearly 15,000,000 by the turn of the century.

Few demographers or educators quarrel with these population estimates and projections. Their differences come in predicting the college-going rates of these young people and of both younger and older Americans. Because each uses heterogeneous underlying assumptions, their forecasts differ greatly, as Figure 2 illustrates.

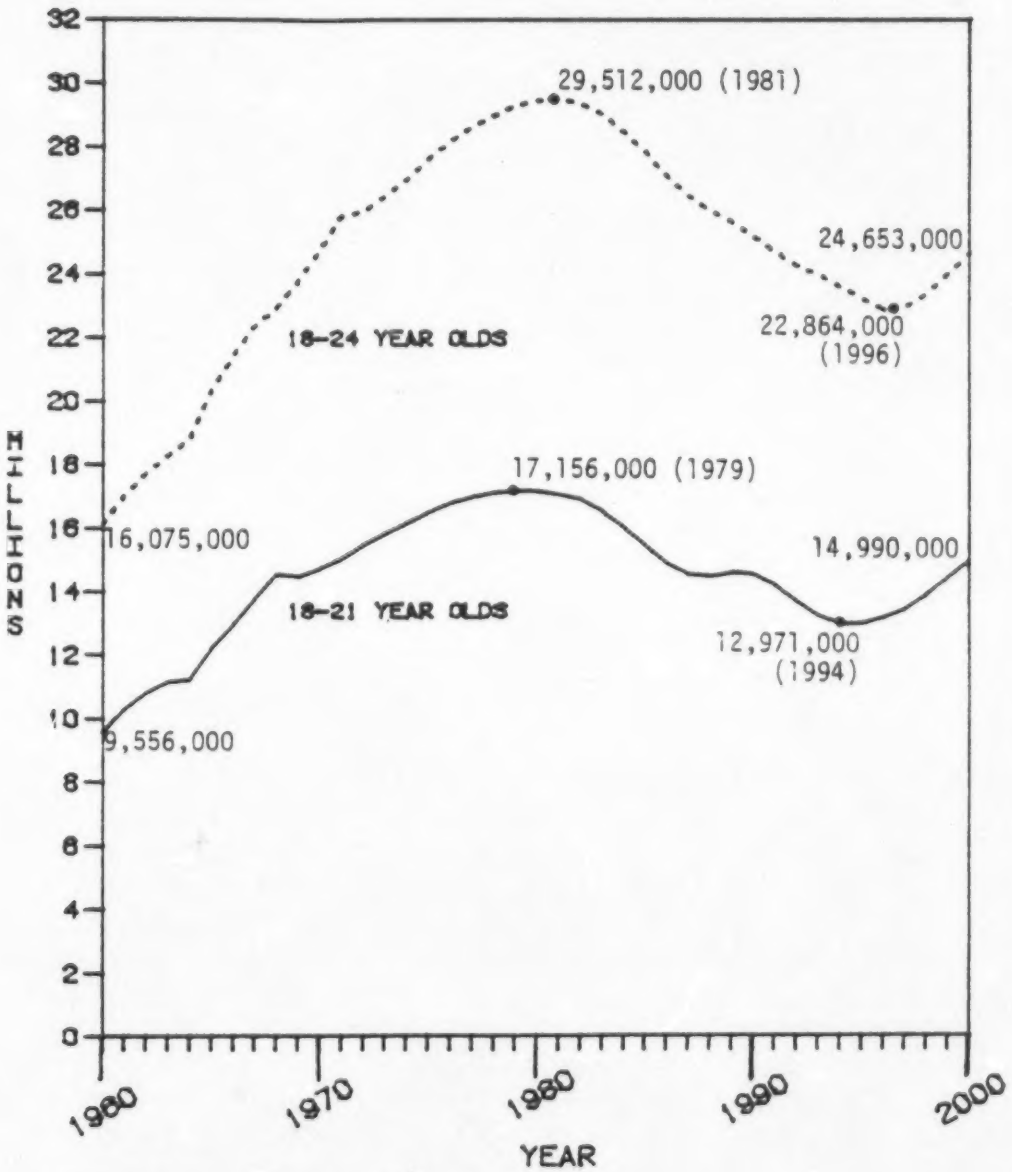
The following paragraphs explain the assumptions on which each of the organizations and individuals base their forecast.

### NATIONAL CENTER FOR EDUCATION STATISTICS

The National Center for Education Statistics (NCES) of the U.S. Department of Education in 1977 prepared three projections of total enrollments in higher education (including both degree-credit and non-degree credit students) through 1985: (1) most likely, (2) high alternative, and (3) low alternative. The three projections are listed in Table 1.

FIGURE 1

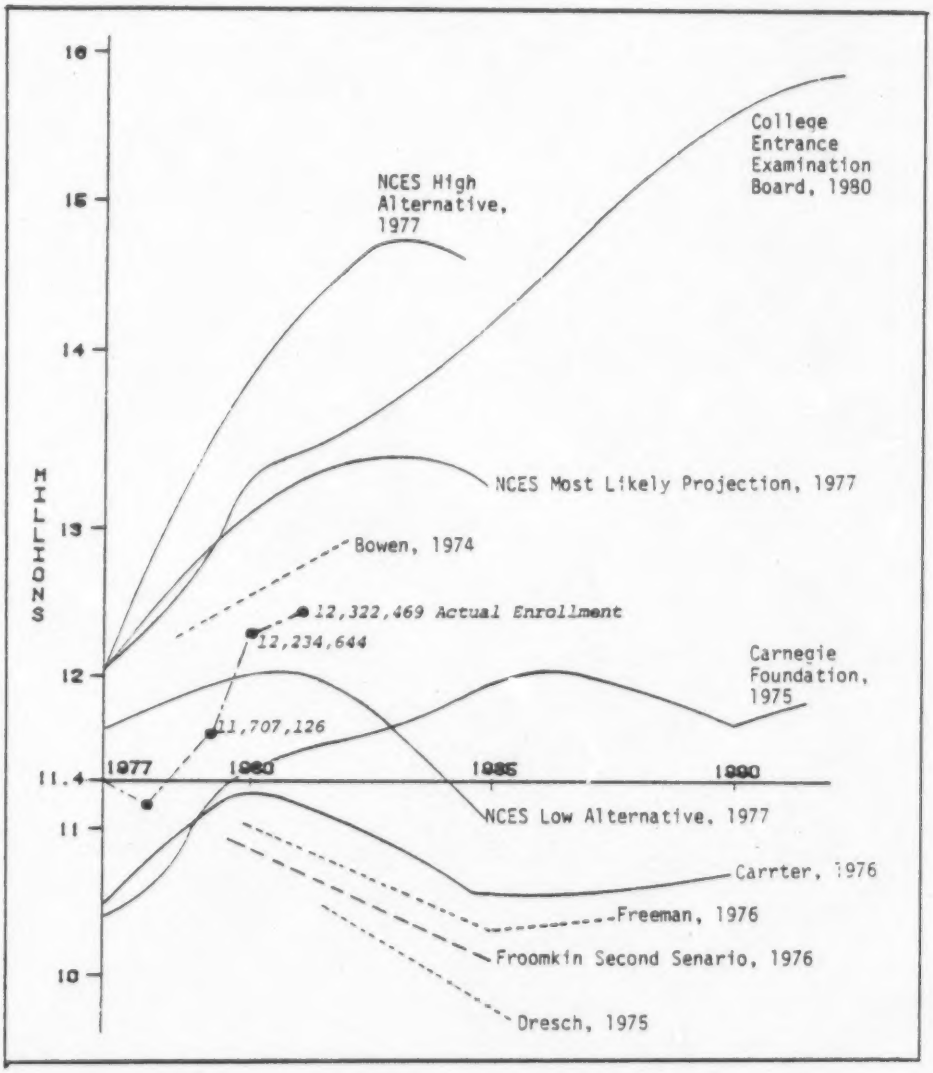
BUREAU OF THE CENSUS ESTIMATES AND PROJECTIONS OF THE 18- TO 21-YEAR-OLD AND 18- TO 24-YEAR-OLD POPULATION IN THE UNITED STATES, 1960-2000




Source: U.S. Bureau of the Census, 1967-1979.

FIGURE 2

PROJECTIONS AND POSSIBILITIES FOR TOTAL ENROLLMENT IN POSTSECONDARY EDUCATION THROUGH 1990 RELATIVE TO ACTUAL 1977 TOTAL ENROLLMENT OF 11.4 MILLION




Source: Centra, 1978, p. 8, with additions by the California Postsecondary Education Commission.

Note: The lines for Bowen, Freeman, Dresch, and Froomkin are not based on actual figures but instead are an approximate illustration of their views.

TABLE 1

NATIONAL CENTER FOR EDUCATION STATISTICS PROJECTIONS
OF TOTAL ENROLLMENT IN ALL INSTITUTIONS
OF HIGHER EDUCATION (IN MILLIONS), 1977

| Year | Most Likely | High Alternative | Low Alternative |
|---|---|---|---|
| 1976 | 11.7 | 11.8 | 11.5 |
| 1977 | 12.1 | 12.3 | 11.7 |
| 1978 | 12.6 | 12.9 | 11.9 |
| 1979 | 12.9 | 13.4 | 12.0 |
| 1980 | 13.2 | 13.8 | 12.1 |
| 1981 | 13.5 | 14.3 | 12.1 |
| 1982 | 13.6 | 14.6 | 12.0 |
| 1983 | 13.6 | 14.7 | 11.8 |
| 1984 | 13.5 | 14.8 | 11.5 |
| 1985 | 13.4 | 14.7 | 11.2 |

Source: Frankel and Harrison, 1977, reproduced in Centra, 1978, p. 5.

The three alternatives are based on the following assumptions:

**Most Likely**

Trends exhibited during the 7- to 10-year period prior to 1975 will continue through 1985. For example, the percentage of full-time undergraduate and unclassified enrollment will follow the 1968 to 1975 trend through 1985.

**High Alternative**

The proportion of the 18- to 21-year-old male population enrolled as undergraduates will increase to the high enrollment rate levels of 1970 and 1971 when the draft was in operation.

**Low Alternative**

1. The proportion of the 18- to 21-year-old male population enrolled as undergraduates will follow the 1968 to 1975 downward trend through 1985.
2. The percentage of the 18- to 21-year-old female population enrolled as degree-credit undergraduates will remain constant at the 1975 level through 1985.
3. The proportion of 18- to 21-year-old men and women enrolled as full-time non-degree credit students will remain constant at the 1975 level through 1985.

As can be seen in Figure 2, actual total enrollments have fallen below the "most likely" of the NCES projections as well as those of Howard Bowen.

## HOWARD BOWEN

In two publications (1974 and 1980), Howard Bowen of Claremont has offered the most optimistic forecasts for higher education's growth apart from the NCES. In 1974, he foresaw enrollments doubling or tripling during the next 20 years. His forecast, which he set forth as a possibility, not as a year-by-year projection, assumed:

1. Major social and cultural changes in America.

2. The growth of higher education is tied to an ever-expanding service sector of the U.S. economy.

3. The growth of higher education should at least parallel the growth of the service sector of the U.S. economy.

In a more recent publication (1980) prepared for the College Entrance Examination Board, he asserts that the United States is committed to becoming what he calls "a nation of educated people." He recognizes that the number of 18-year olds will decline steadily during the 1980s and will level off in 1991 at about 73 percent of the number in 1979, but he observes that the 18- to 21-year-old age group no longer dominates higher education. That is, the majority of students are beyond age 21. Enrollment growth in recent years has been among the older age groups, a trend that is likely to continue. He points to the fact that the 18- to 21-year-old age cohort consists of fewer than 17 million people, whereas the 22 and over cohort contains 133 million, and notes that a 27 percent decline in the enrollment of 18- to 21-year olds could be offset by a 3.5 percent increase in the enrollment of older students. Following these observations, Mr. Bowen projects one possibility for enrollment through the year 2000 based on these assumptions:

1. The birth rate (average number of lifetime births per 1,000 women) will hold steady at the replacement-level birth rate of 2,100 throughout the period.

2. The college participation of the 16- to 17- and 18- to 21-year olds will remain the same as in recent years, but for those in the 22 and over age groups (22-24, 25-29, 30-34, and 35 and over), the percentage attending will increase steadily over time following a straight-line projection of the increase from 1970 to 1976.

Mr. Bowen concludes that this possibility can be attained and that the oft-predicted depression in higher education enrollments is not inevitable, although it is not inconceivable. In companion projection of full-time equivalent enrollments, he shows that even these numbers could increase without a period of decline during the next two decades.

JOSEPH FROOMKIN

Joseph Froomkin has presented three scenarios of enrollment projections to 1985 (1974, 1976, 1978). The first was his most optimistic, paralleling that of the NCES high alternative; the third is one of the most pessimistic thus far published. (Figure 2 portrays only the second of the three.) The assumptions are:

| First Scenario | Second Scenario | Third Scenario |
|---|---|---|
| Stable enrollment growth to 1985 based on the continuing trend established in the early 1970s. | 1. Poor job market for college graduates will result in a 15 percent decline in enrollments from the 1974 level because high school graduates will be less inclined to enroll.<br>2. One-third to one-half of all college graduates will take jobs formerly filled by persons with less education. | 1. Same as for the second scenario except that the decline in enrollments will approach 50 percent.<br>2. The supply of college graduates and the number of suitable jobs will be in balance in 1985. |

STEPHEN DRESCH

Stephen Dresch (1975) forecasts a 50 percent decrease in undergraduate enrollments by the year 2000 from the high point of the early 1980s, with a 40 percent decrease before 1990. His forecast assumes:

1. Higher education has overexpanded, and

2. The income gain that graduates can expect from a degree has diminished considerably.

## RICHARD FREEMAN

Richard Freeman (1976) bases his forecasts on a general model of supply and demand for educated labor. The poor job market of the 1970s will undergo moderate increases in the early 1980s and will expand greatly in the 1985-1990 period because of the backlog in the supply of new graduates. He assumes:

1. The poor job market will depress college enrollments in the late 1970s.

2. The market for college-trained workers will improve moderately in the early 1980s.

3. Declining enrollments in the late 1970s and early 1980s will produce small graduating classes that will eventually shift the labor market from a surplus of graduates to a shortage which will create an enrollment boom in the 1985-1990 period.

4. Economic rewards for a college education will not be restored to the level of the 1960s.

## ALLAN CARTTER

Forecasts of the late Allan Cartter (1976) assume that the ratio of college enrollment to the 18- to 21-year-old age group will remain constant, resulting in a decline in full-time equivalent enrollment of about 1.8 million between 1980 and 1994. Mr. Cartter maintains that these enrollment declines will be partially offset by:

1. Expanding non-degree enrollments;

2. A higher rate of college attendance by older students; and

3. More stable graduate and professional program enrollments.

These assumptions will reduce the enrollment decline to one-half million students.

CARNEGIE FOUNDATION

In More Than Survival: Prospects for Higher Education in a Period of Uncertainty (1975), the Carnegie Foundation for the Advancement of Teaching published a commentary that assesses the fate of various types of institutions of higher education and predicts what is likely to happen to them between 1975 and 2000. Its enrollment projections assume that:

1. Enrollment rates will rise based on past trends (in contrast to constant enrollment rates) for part-time students, non-degree-credit students, women, and Blacks and other minorities.

2. The white male enrollment rate will return to its peak levels of the late 1960s by the year 2000.

3. The Series F population projections of the Bureau of the Census, which assume a fertility rate of 1.8, are more reliable than Series E, which assume a fertility rate of 2.1.

4. The demand for school teachers will reflect current pupil-to-teacher ratios.

5. The draft will not be reinstated.

6. Student aid will continue to rise in accordance with provisions in current legislation.

7. And funds going to veterans who are students will be shifted to nonveterans.

The Foundation identified three phases of change in enrollments through the year 2000: (1) a slowing rate of enrollment growth to 1983; (2) a leveling accompanied by an approximately 3 percent absolute decline in enrollments between 1985 and 1990; and (3) slow growth restored after 1990. It emphasized that enrollment trends will vary among different types of institutions, so that during the no-growth phase, some types of institutions (for example, public two-year colleges) may grow while others (such as less selective liberal arts colleges) decline in enrollments.

The Foundation developed forecasts for six types of institutions under the most likely conditions. Through 1985, it estimated increases for:

public community colleges,
highly selective liberal arts colleges, and
universities.

It anticipated decreased enrollment at:

comprehensive colleges and universities,
less highly selective liberal arts colleges, and
private two-year colleges.

Other considerations such as size, location, status, reputation, age, financial condition, management, graduate enrollments, and established programs in the health professions will also affect shifts in enrollment. Thus colleges and universities in the South, California, and New York will be better off in terms of enrollment than those located in the North Plains and Rocky Mountain states.

## CARNEGIE COUNCIL

In its final report, Three Thousand Futures (1980), the Carnegie Council on Policy Studies in Higher Education provides a judgment about enrollment projections but does not attempt to present a year-by-year projection of national enrollments. Instead, it compares full-time-equivalent undergraduate enrollments for 1978 with 1997--the expected low point for undergraduate enrollments--and identifies the impact of each contributing factor in its projection model. The Council foresees a decline within a range of 5 to 15 percent for these undergraduate enrollments during this period. The Council qualifies its projections model by noting "how precarious it has become to make predictions." According to the Council, some of the factors that make projection models so difficult are:

1. The new phenomenon of stop-outs.

2. Higher proportions of adults attending college.

3. Higher proportions of part-time students.

4. Higher percentages of students in two-year colleges who have more marginal commitments to attendance shifting with circumstances.

5. Higher proportions of students at graduate levels, particularly the master's level, tied to immediate job prospects which fluctuate.

6. Changing inducements to attend college in the form of veterans' benefits, student subsidies, and opportunities in the labor market.

7. Changing private rates of return on a college education.

8. Changing military recruitment policies.

9. The historic shift from assured class to less certain mass attendance.

10. The rise and fall of geographic areas.

11. The addition of quality-of-life objectives of a recreational and social nature to professional and vocational objectives.

12. More nontraditional institutions catering to special markets.

In developing its projection of undergraduate enrollments for 1997, the Council:

1. Incorporates a prospective decline of the 18- to 24-year age group of 23.3 percent from 1978.

2. Adjusts the impact of this decline by 20 percent, because 20 percent of FTE undergraduate enrollments are comprised of students over 24 years of age, resulting in a projected 19 percent decrease.

3. Offsets this by 4 percent to account for the prospective increase in enrollments of persons 25 and older.

4. Adjusts projections by 5 percent to reflect the increase attributable to the population that is 25 years of age or older who have prior college experience which normally results in higher participation rates.

5. Decides that the decreasing 18- to 24-year-old male participation rate will cause an additional decline of 5 percent.

6. And adjusts for changes in other enrollment components as follows:

   a. More Blacks and more participation by Blacks: add 2 percent.

   b. More participation by majority women aged 18-24: add 4 percent.

c. Increased retention: add 4 percent.

d. Impact of increasing proportion of part-time enrollments (increased headcount but decreased FTE): subtract 5 percent.

7. Ignores the impact of more 16- and 17-year old high school students taking college classes, more foreign students, and more Hispanics, but acknowledges that these groups would increase the FTE forecasts.

The effects of these components are shown in Table 2.

TABLE 2

POTENTIAL DECLINE IN FULL-TIME-EQUIVALENT UNDERGRADUATE ENROLLMENT, 1978 TO 1997, WITH CONTRIBUTION FROM EACH FACTOR IN CARNEGIE COUNCIL PROJECTION MODEL

| | *Percentage* |
|---|---|
| Decline in 18-24 age cohort | -25.3 |
| Adjusted for the 80 percent that this age cohort constitutes of all enrollments | -19 |
| Adjusted for increase in population 25 and over at constant participation rates (+4 percent) | -15 |
| Adjusted for increase in percentage of population 25 and over with college experience and resultant higher participation rates (+5 percent) | -10 |
| Adjusted for potential further decrease in participation rates by males 18-24 (-5 percent) | -15 |
| Adjusted for changes in other components: | |
| More blacks and more participation by blacks (+2 percent) | |
| More participation by majority women 18-24 (+4 percent) | |
| Increased retention (+4 percent) | |
| Impact of increasing proportion of part-time enrollment (-5 percent) | |
| Net +5 percent | |
| Applied to (A) | -5 |
| Applied to (B) | -10 |

Source: Carnegie Council on Policy Studies in Higher Education, 1980, p. 38.

The Council notes that undergraduate enrollment will not decline at an even pace. Enrollments are likely to remain relatively constant through 1982, decline from fall 1983 to fall 1988 (accounting for approximately 40 percent of the total decline), possibly rise in 1989 and 1990, then decrease the remaining 60 percent of the forecasted decline from 1991 to 1997, and begin to recover in 1998. And despite current pessimism about the value of the Ph.D., the Council expects graduate enrollments to rise slightly between 1980 and 2000, although it foresees extensive redistribution of these enrollments among subject fields.

The Council forecasts considerable regional variations in enrollments with a decrease of 10 percent in the East and Midwest contrasted to a 5- to 10-percent gain in the South and West. Under these projections, California may have relatively stable or slight increases in enrollments, with individual institutions varying in terms of the six types of institutions noted above.

## AMERICAN COUNCIL ON EDUCATION

A report by the American Council on Education (Henderson, 1977) estimates state-by-state enrollment levels in 1985 based on the projected 18-year-old population for each state as forecast by the U.S. Bureau of the Census.

The ACE's state enrollment projections are based on three assumptions:

1. General population shifts to the South and West will continue through the next decade.

2. State-by-state participation rates will range from 22 to 34 percent, based on 1970 and 1975 data, with a slight regression toward the median of the 1970 distribution.

3. The migration of traditional-age freshmen among states will remain stable over the 1975-85 period, averaging about 16 percent.

4. The 18-year-old population will decline between 1975 and 1985 by 12 percent and traditional age freshmen will decline by 4.4 percent.

Compared to a national decline of 12 percent, for California, the ACE projects an 8 percent decline in 18-year olds between 1975 and 1985 (377,392 in 1985, compared to 412,500 in 1975--a decrease of

35,108). It assumes the participation rate of 18-year olds will remain at its 1975 level of 30 percent in 1985. And because California has historically been a net importer of freshmen, it anticipates net immigration of 29,786 traditional-age freshmen into California institutions in 1985, based on unpublished data collected by the Commission for the 1975 Residence and Migration Study of the National Center for Education Statistics. The net result of these three factors is that the ACE projects California's traditional-age freshmen in 1985 to be 5.4 percent greater than in 1975.

The most recent report by the American Council on Education (Frances, 1980) seeks "to set the record straight on enrollment trends" (p. 5). It does not provide annual projections of college enrollments because "college enrollments will actually depend not only on the demographic trends but also on the economic, social, and political decisions made by students, their families, and those in the private sector and in government who provide resources to students and to institutions" (ibid.). Instead, it provides information for use in analyzing the potential of 12 alternative enrollment-building strategies for counteracting the projected enrollment declines among current student groups between 1980 and 1990. A summary that identifies these 12 strategies appears in Table 3.

It foresees a 9.2 percent drop in full-time-equivalent undergraduate enrollments between 1980 and 1990 without these strategies, but anticipates no decline if a number of them are adopted. For example, if by 1990, three non-overlapping national strategies--numbers 3, 7, and 12--were implemented and directed toward increasing the college-going rates (1) of lower- and middle-income youth to the rate of the next higher income level, (2) of adults by one percentage point, and (3) of foreign students, they would add some 1,098,000 full-time-equivalent students, who would more than compensate for the projected decline in the 18- to 24-year-old enrollments. The net result would yield an increase of 301,000 FTE students by 1990, representing a net increase of 3.5 percent over 1980 enrollments. (Some of the 12 enrollment-building strategies overlap, and to obtain an unduplicated student count, an adjustment must be made among them in order to calculate their total net enrollment offset.)

## CONCLUSION

These national studies of enrollment provide a wide variety of answers to questions about future enrollments for the remainder of this century. Approximately six times as many students would be enrolled in higher education by the year 2000 under Bowen's possi-

TABLE 3

## AMERICAN COUNCIL EDUCATION FRAMEWORK FOR ASSESSING THE POTENTIAL OFFSETS TO PROJECTED ENROLLMENT DECLINES IN THE COLLEGE-AGE POPULATION

| Year | College-Age Population (18–24) | College-Going Rate (18–24) | Enrolled in College (18–24) | Total Enrollment (All Ages) | Calculated Full-Time Equivalent (Percent) | Calculated Full-Time Equivalent (Number) |
|---|---|---|---|---|---|---|
| 1978 (Actual) | 27.647.000 | 25.3 | 6.995.000 | 11.661.000 | 73 | 8.513.000 |
| 1980 (Calculated) | 29.462.000 | 25.3 | 7.454.000 | 11.902.000 | 73 | 8.681.000 |
| 1990 (Calculated) | 25.148.000 | 25.3 | 6.362.000 | 10.810.000 | 73 | 7.891.000 |
| 1980–1990 | | | Projected Decline | | | |
| Number | 4.314.000 | | -1.092.000 | -1.092.000 | | -797.000 |
| Percent | -14.6% | | -14.6% | -9.2% | | -9.2% |

| Alternative Strategies | Changed Condition 1980–90 | Calculated Increase in Enrollment Head Count | Calculated Full-Time Equivalent (Percent) | Calculated Increase in Enrollment (FTE) |
|---|---|---|---|---|
| | Possible Offsets | | | |
| Young People | | | | |
| 1. Increased high school graduation rates | Increase high school graduation rate from 75 percent to 80 percent | 83.000 | 73 | 61.000 |
| 2. Increased credentialling by test | Increase credenticling rate from 7.6 percent to 9.6 percent of high school dropouts | 22.000 | 56 | 12.000 |
| 3. Increased enrollment of young people from lower and middle income families | Increase college-going rate at each $5.000 income level to the rate at the next higher income level | | | |
| Lower income (Less than $10.000) | | 237.000 | 73 | 173.000 |
| Middle income ($10.000–24.000) | | 329.000 | 73 | 240.000 |
| Higher income ($25.000 and over) | | 0 | | |
| 4. Increased enrollment of minority youth | Increase minority high school graduation rates from 69.8 percent to 80.0 percent from 1980 to 1990 | 102.000 | 73 | 74.000 |
| 5. Increased college-going rate of the 18–24 age group | Increase the college rate 2 percentage points from 25.3 percent to 27.3 percent | 503.000 | 73 | 367.000 |
| 6. Increased retention rates | Cut attrition between years 1–2 and 3–4 by a quarter | 161.000 | 73 | 118.000 |
| | Attract one quarter of those who complete two-year programs into four-year programs | 146.000 | 73 | 107.000 |
| Adults | | | | |
| 7. Increased enrollment of adults 25 and over | Increase enrollment at existing adult college-going rates because of adult population growth | 629.000 | 56 | 352.000 |
| | Increase college-going rates for adults by 1 percentage point, from 7.7 to 8.7 (25–34) and 1.4 to 2.4 (35 and over) | 230.000 | 56 | 129.000 |
| 8. Increased participation of women 20–34 | Increase women's college-going rates to level of men's | 1.230.000 | 56 | 689.000 |
| 9. Increased participation of men 35–64 | Increase men's college-going rates to level of women's | 314.000 | 56 | 176.000 |
| 10. Increased enrollment of graduate students | Increase, but at a slower rate than 1970–77 | | | |
| Public institutions | | 110.000 | 56 | 62.000 |
| Private institutions | | 68.000 | 56 | 38.000 |
| 11. Increased enrollment of employed people currently being served by industry | Increase market share by 2 percent | 800.000 | 17 | 136.000 |
| Foreign Students | | | | |
| 12. Increased enrollment of foreign students | Increase at a lower rate than 1950–78 | 280.000 | 73 | 204.000 |

Source: Frances, 1980, pp. 42-43.

bility as under Froomkin's most pessimistic scenario. Because state educational planning cannot be accomplished with enrollment projections as disparate as these existing at the national level, state projections are needed. Chapter Two examines enrollment projections of the California Department of Finance and the State's segments of higher education in order to bring the subject into focus in California.

# CHAPTER TWO

## CALIFORNIA ENROLLMENT PROJECTIONS

Enrollment projections in California represent the essential foundation for annual current expense and capital outlay budgets, facilities planning, academic planning, personnel recruitment, admissions policies, and nearly every other facet of the management and administration of higher education. Projected enrollments, in terms of average daily attendance, full-time equivalents, headcount, and levels of instruction, are the basic ingredients in the budget formulas that drive the preparation of the current expense budgets at segmental and campus levels. They also represent the basic workload units that the Commission, the Department of Finance, the Office of the Legislative Analyst, the Legislature, and the Governor use as the fundamental measures of need in their review and evaluation of segmental budgets. It is essential, therefore, that these figures be determined with extreme care and professional judgment.

The Legislature created the Population Research Unit within the Department of Finance as the State's one and only official demographic agency. Under Section 13073 of the Government Code, the Unit is charged to provide adequate demographic data to aid effective state and local planning and policy making and serve all levels of government and the private sector as the centralized state source of demographic data. Thus the Unit is charged to coordinate its activities with the Office of Planning and Research in order to avoid duplication of functions and is designated as the primary state government liaison with the U.S. Bureau of the Census in the acquisition and distribution of census data and related documentation to state agencies in addition to its many other demographic duties.

In Section 13073.5 the Code declares that:

> (1) population size and distribution patterns in California exert a major influence on the physical, social, and economic structure of the state and on the quality of the environment generally; (2) sound and current data and methods to estimate population trends are necessary to enable state, regional, and local agencies to plan and function properly; and (3) there is a critical need for a proper study of the implications of present and future population trends in order that state, regional, and local agencies might develop or reexamine policies and actions based thereon.

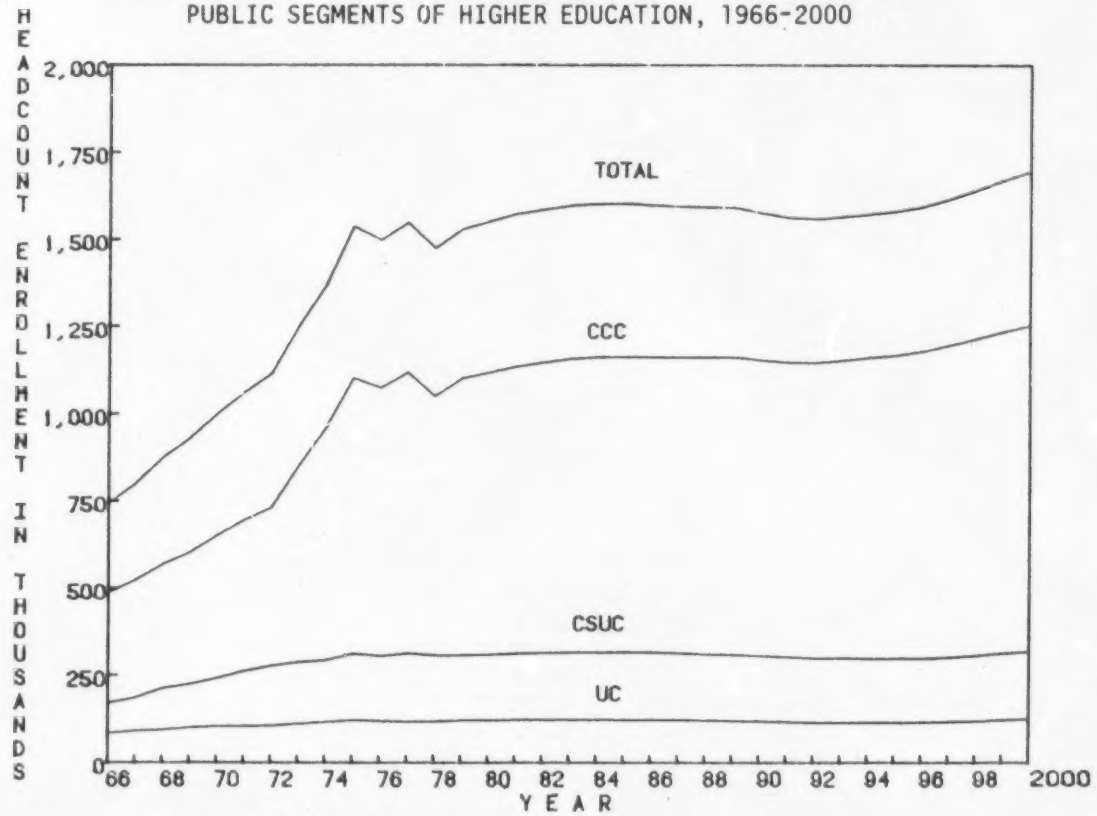
To carry out these goals, the Unit has had 18 specific duties assigned to it in statute, the most important for higher education being these four:

(e) Analyze and prepare projections of enrollments, in public schools, colleges, and universities . . . .
(i) Provide advisory services to state agencies and other levels of government . . . .
(m) Request and obtain from any department, division, commission, or other agency of the state such assistance and information as will enable the unit to effectively carry out the provisions of this section . . . .
(o) Enter into agreements to carry out the purposes of this section, including the application for and acceptance of federal funds or private foundation grants for demographic studies.

Figure 3 shows the latest overall enrollment projections by the Population Research Unit for California through the year 2000.

FIGURE 3

ACTUAL AND PROJECTED HEADCOUNT ENROLLMENT IN CALIFORNIA'S PUBLIC SEGMENTS OF HIGHER EDUCATION, 1966-2000




Source: California Postsecondary Education Commission, from Population Research Unit, Department of Finance, August 21, 1980.

Table 4 provides these projections numerically. In general, enrollments in public institutions are expected to increase through 1985, decline gradually by 2.8 percent in 1992, then begin a climb upward until they reach the previous high again in approximately 1997. Figures 4, 5, and 6 in the following sections of this chapter portray these projections for each of the three public segments of higher education described in the sections.

## CALIFORNIA COMMUNITY COLLEGES

Section 81821 of the Education Code stipulates that the governing board of each Community College district shall prepare and submit annually to the Chancellor a ten-year plan for capital construction, based on the enrollment projections for each district that are formulated by the Population Research Unit of the Department of Finance. These enrollment projections for each individual college within a district are made cooperatively by the Unit and the Community College district. They consist of two elements: (1) fall headcount enrollment, and (2) annual average weekly student contact hours (WSCH)--a measure of student workload.

Prior to 1975 these projections presented data for "day graded" (credit) enrollment only. In 1975, and for 1974 revisions, the Unit introduced a new methodology, primarily because of two developments: First, Chapter 936 of the Education Code was amended to include "ungraded" (now termed non-credit) and "extended day" (evening) enrollment in determining capital outlay. Second, the growing numbers of older persons returning to college made projecting enrollment from recent and projected high school graduate figures unrealistic. Since 1975, the methodology used by the Unit to project Community College enrollments has remained essentially the same with the addition of some variations and refinements. Basically, it is an age/sex participation rate model applied to an age/sex population projection of the county of location of each district. (For multi-county districts, the county or counties of primary importance are used.) The current population base is the Department of Finance's Interim E-150 baseline projection series, which assumes a completed fertility rate of 2.1 and statewide average net in-migration of 150,000 annually. This population base is modified by excluding persons residing in military barracks, state institutions, and full-time students at local four-year colleges and universities, since the Unit believes these are persons unlikely to attend a Community College.

The fall enrollment used in the projection series is the first census week count of active enrollments reported on the CCAF-130

TABLE 4

ACTUAL AND PROJECTED HEADCOUNT ENROLLMENT
IN CALIFORNIA'S PUBLIC SEGMENTS OF HIGHER EDUCATION, 1966-2000

| Year | California Community Colleges[1] | California State University and Colleges[2] | University of California[3] | TOTAL |
|---|---|---|---|---|
| History | | | | |
| 1964 | 411338 | 148956 | 68039 | 628333 |
| 1965 | 459400 | 154927 | 75667 | 689994 |
| 1966 | 487458 | 169520 | 82300 | 739278 |
| 1967 | 521695 | 185601 | 89772 | 797068 |
| 1968 | 568221 | 211568 | 92492 | 872281 |
| 1969 | 602938 | 224837 | 99153 | 926928 |
| 1970 | 652133 | 241559 | 101827 | 995519 |
| 1971 | 694805 | 262081 | 101351 | 1058237 |
| 1972 | 729631 | 276737 | 104662 | 1111030 |
| 1973 | 851300 | 286633 | 110303 | 1248236 |
| 1974 | 958517 | 291542 | 114109 | 1364168 |
| 1975 | 1101933 | 310891 | 119899 | 1532723 |
| 1976 | 1072591 | 303734 | 117460 | 1493785 |
| 1977 | 1117990 | 312380 | 115024 | 1545394 |
| 1978 | 1048756 | 306175 | 115641 | 1470572 |
| 1979 | 1100681 | 306802 | 119169 | 1526652 |
| Projection | | | | |
| 1980 | 1118900 | 309800 | 120100 | 1548800 |
| 1981 | 1136200 | 313000 | 120800 | 1570000 |
| 1982 | 1147300 | 314800 | 121000 | 1583100 |
| 1983 | 1156800 | 316300 | 121000 | 1594100 |
| 1984 | 1161900 | 316100 | 120600 | 1598600 |
| 1985 | 1162700 | 316400 | 120100 | 1599200 |
| 1986 | 1161200 | 313600 | 119600 | 1594400 |
| 1987 | 1159800 | 311700 | 118700 | 1590200 |
| 1988 | 1160100 | 310000 | 118400 | 1588500 |
| 1989 | 1161000 | 308000 | 117900 | 1586900 |
| 1990 | 1152700 | 304100 | 115400 | 1572200 |
| 1991 | 1145100 | 300800 | 113100 | 1559000 |
| 1992 | 1145000 | 298000 | 111800 | 1554800 |
| 1993 | 1152900 | 296900 | 111700 | 1561500 |
| 1994 | 1160700 | 296300 | 111800 | 1568800 |
| 1995 | 1168300 | 296500 | 111900 | 1576700 |
| 1996 | 1179900 | 297700 | 112800 | 1590400 |
| 1997 | 1196100 | 301300 | 114800 | 1612200 |
| 1998 | 1214800 | 306100 | 117400 | 1638300 |
| 1999 | 1234800 | 311600 | 120200 | 1666600 |
| 2000 | 1253700 | 316800 | 122700 | 1693200 |

[1] Credit enrollment only; no prior history available; preliminary projection
[2] Undergraduate and Graduate
[3] Undergraduate and Graduate; excludes Health Sciences

Source: Population Research Unit, Department of Finance, August 21, 1980.

report by each college to the Analytical Studies Unit of the Community Colleges Chancellor's Office. For most districts, ten years of enrollment history were available for the 1981 Capital Outlay Projection. For each year of historical data, the enrollment categories of full-time day, part-time day, full-time evening, part-time evening and non-credit are divided into five age groups and related to the appropriate population age groupings as follows:

| Enrollment | Population |
|---|---|
| 19 and under | 18 and 19 |
| 20-24 | 20-24 |
| 25-29 | 25-29 |
| 30-34 | 30-34 |
| 35 and over | 35-64 |

The comparisons between the enrollment and population age groups are expressed as participation rates per 1,000 persons in the total population age group. Each age/sex/enrollment category thus comprises one of 50 rate series (male and female times five age groups times five enrollment categories), which are independently extrapolated for ten years using linear regression techniques. Several models which utilize variations of the least-squares regression slope are graphed for each of the age/sex/enrollment categories. The analyst, using a general knowledge of enrollment trends and a more specific knowledge of the plans of each district, determines which of the projected series is most reasonable for each of the 50 rate series. The projected participation rates are then applied to the appropriate age/sex population base and the resulting enrollments are summed to obtain a district total for the enrollment categories of day, evening, and non-credit students.

Recent modifications to this basic projection program include the option of excluding a year of historical enrollment from the series if it is felt this year does not accurately reflect the general pattern of enrollment in the district--for instance, because of a definitional change in the non-credit category or an unusual switch between evening and non-credit enrollment categories. It is also possible to reset the last historical year's participation rate if it is felt the enrollment in that category produced an unusually high or low participation rate and does not reflect current district plans. Moreover, it is possible to set both the beginning and ending participation rates--a technique of particular use if the analyst knows of specific district plans for the various enrollment categories.

Each Community College calculates its annual average weekly student contact hours used in the projection series for the categories of day, evening, and non-credit students from its annual CCAF-130

report, which it sends to the Fiscal Affairs Unit of the Chancellor's Office. (Summer school WSCH are not used in this calculation.) The Population Research Unit then analyzes the historical series of enrollment, WSCH, and WSCH per student data in order to set hours per student for the categories of day, evening, and non-credit enrollments. These hours per student are multiplied against the projected enrollments to arrive at the projected WSCH. In the categories of evening and non-credit enrollments, the WSCH per student are held constant in the projection. In the category of day enrollments, the WSCH per student decline as the percentage of full-time students declines.

The Population Research Unit works closely on these projections with the Community College campuses and districts and the Chancellor's Office. For example, through a mutually acceptable format, the Chancellor's Office supplies computer readable fall enrollment data for all campuses to the Unit as soon as it compiles campus reports. Ten-year enrollment projections developed by the Unit are sent to the Chancellor's Office and to each district early in the budget formulation process. The Unit's relationships with each district are such that most policy changes that might impact on its enrollment projections are well-known and understood by Unit analysts and can be reflected in the Unit's projections. Staff from the Population Research Unit attend and participate in the annual Community College Capital Outlay Workshops that are held throughout the State. When a district or campus questions its enrollment projections, the two groups resolve these questions in a timely manner.

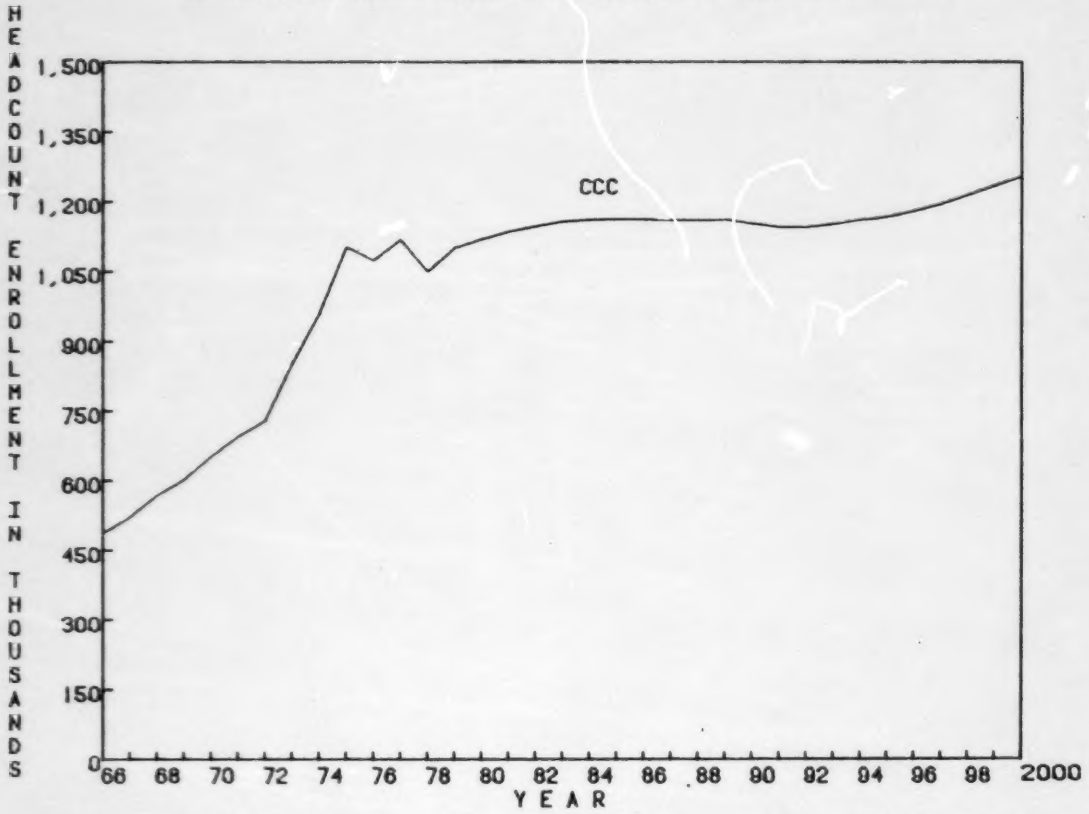
For informational purposes, the latest aggregate enrollment projections for the Community Colleges are presented in Figure 4. Individual district enrollment projections are available for a ten-year period, but at the request of Commission staff, the Population Research Unit has extended its segmental projections to the year 2000. Figure 4 represents a status-quo projection, in that any changes in district, state, or federal policies that affect college-going rates will require its reexamination. As can be seen from Figure 4 as well as Table 4 earlier, the highest enrollment forecasted for the Community Colleges is expected in 1985--a level that will not be regained until 1995. The minimum enrollment is expected in 1992, but is expected to be a decrease of only 1.5 percent from the previous high.

## CALIFORNIA STATE UNIVERSITY

The Population Research Unit provides ten-year segmental undergradu-

FIGURE 4

ACTUAL AND PROJECTED HEADCOUNT ENROLLMENT
IN THE CALIFORNIA COMMUNITY COLLEGES, 1966-2000




Source: California Postsecondary Education Commission, from Population Research Unit, Department of Finance, August 21, 1980.

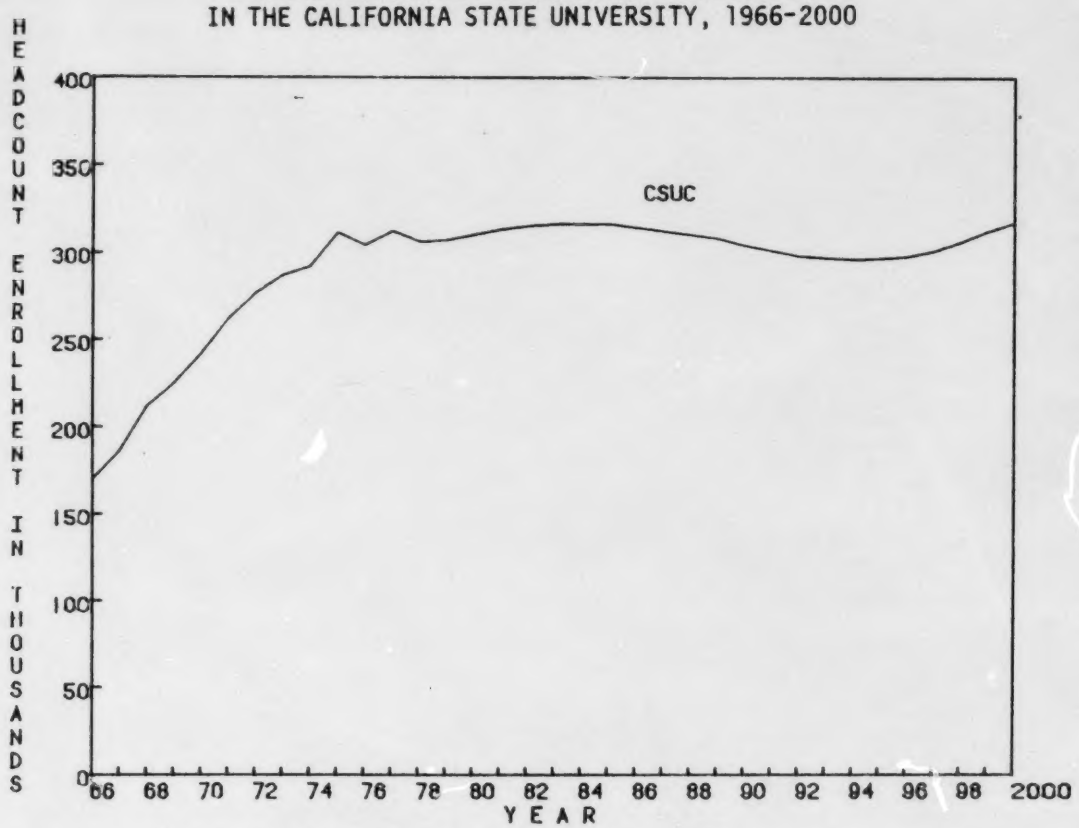
ate and graduate headcount enrollment projections to the Chancellor's Office of the State University, using an age/sex participation rate model applied to an age/sex population projection for each county. The Office of the Chancellor converts these headcount projections to FTE enrollments and, based on its knowledge about each of the campuses and their programs, distributes the totals among the 19 campuses.

These projections drive the various budget formulas in the support budget and determine the need for capital outlay. The Institutional Research Division in the Chancellor's Office has indicated that the Population Research Unit projections are consistent with its own

projections and are reasonably accurate. Status-quo enrollment projections for the California State University are shown in Figure 5. As is evident, the State University's highest enrollment is expected in 1985, a level that may not be reached again until 2000. Its lowest enrollment may occur in 1994--a decrease of 6.4 percent from its highest level.

FIGURE 5

ACTUAL AND PROJECTED HEADCOUNT ENROLLMENT
IN THE CALIFORNIA STATE UNIVERSITY, 1966-2000




Source: California Postsecondary Education Commission, from Population Research Unit, Department of Finance, August 21, 1980.

## UNIVERSITY OF CALIFORNIA

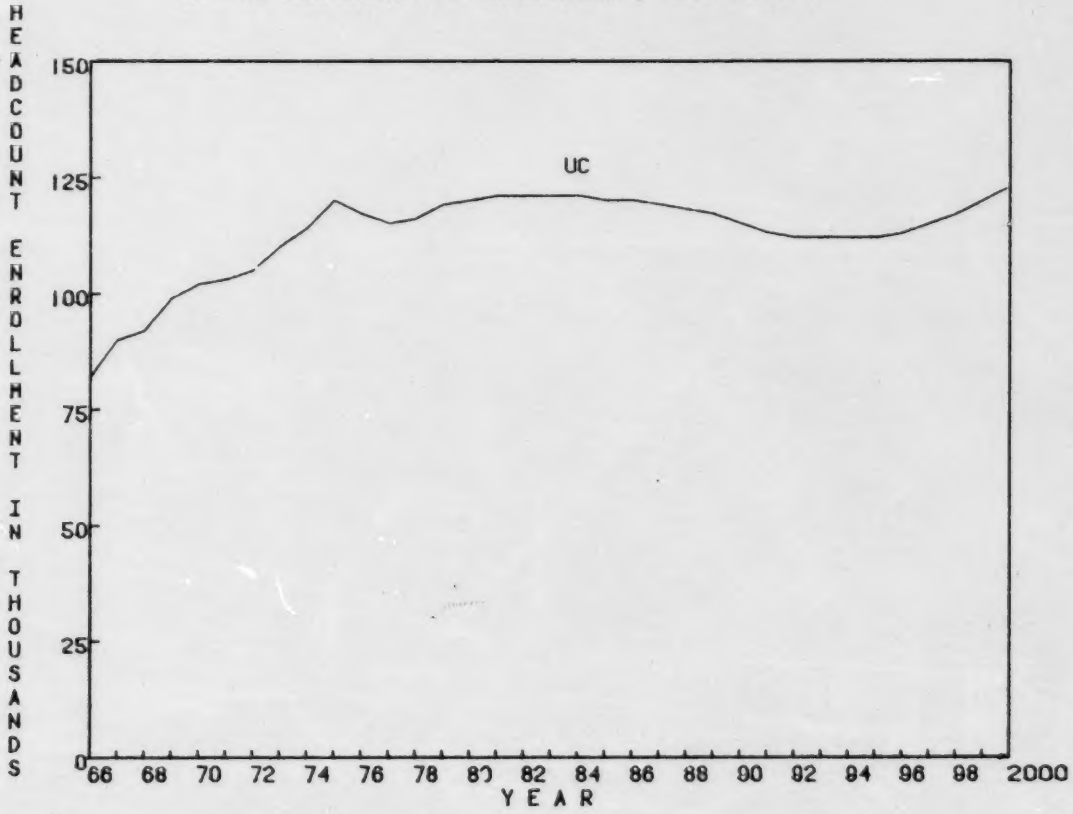
The Population Research Unit annually provides the University of California a ten-year systemwide projection of undergraduate and

graduate enrollments that it derives through age/sex participation rates for each county. University of California undergraduates have been comprised historically of high school graduates in the traditional college-age group (18- to 24-year olds); hence the rates used for its various age categories are vastly different from those used for the other two public segments.

The Unit's projections for the University appear in Figure 6. The data indicate that enrollment at the University may reach a peak in 1982 and 1983 then decline to a low point in 1993 where it will again be on the increase reaching the 1982-83 level again in 1999. The peak-to-trough decline is expected to be about 7.7 percent. These data do not appear to be used by the University. Instead, each campus makes its own projections, negotiates mutually satis-

FIGURE 6

ACTUAL AND PROJECTED HEADCOUNT ENROLLMENT
IN THE UNIVERSITY OF CALIFORNIA, 1966-2000




Source: California Postsecondary Education Commission, from Population Research Unit, Department of Finance, August 21, 1980.

factory figures with Systemwide Administration, and utilizes these results for its support and capital outlay budget. The University maintains its own demographic unit within the Academic Planning and Program Review Division of Systemwide Administration.

The expectation of a decline in enrollments arising from a decrease in the number of births between 1961 and 1977 and a leveling off of college participation rates during the 1970s prompted the University to initiate an Undergraduate Enrollment Study and charged its Demographic Task Group with examining the demographic changes that would underlie the University's enrollments in the next two decades. The Population Research Unit provided the basic data for the study. The report of the Task Group, published in June 1980, contains three major components: (1) an analysis of demographically based enrollment projections; (2) a discussion of selected socioeconomic factors that may influence future participation rates; and (3) a summary of findings and recommendations. It states that "the work of the Group has laid the groundwork for a University enrollment model, now in progress" (Fishlow and Parker, 1980, p. v). In the report, the Task Group developed three separate undergraduate enrollment projections: one based on the projected 18- to 24-year-old population; the second based on the 16- to 40-year-old population; and the third based on high school graduates. Figure 7 reproduces these projections, using 1979 as the base year.

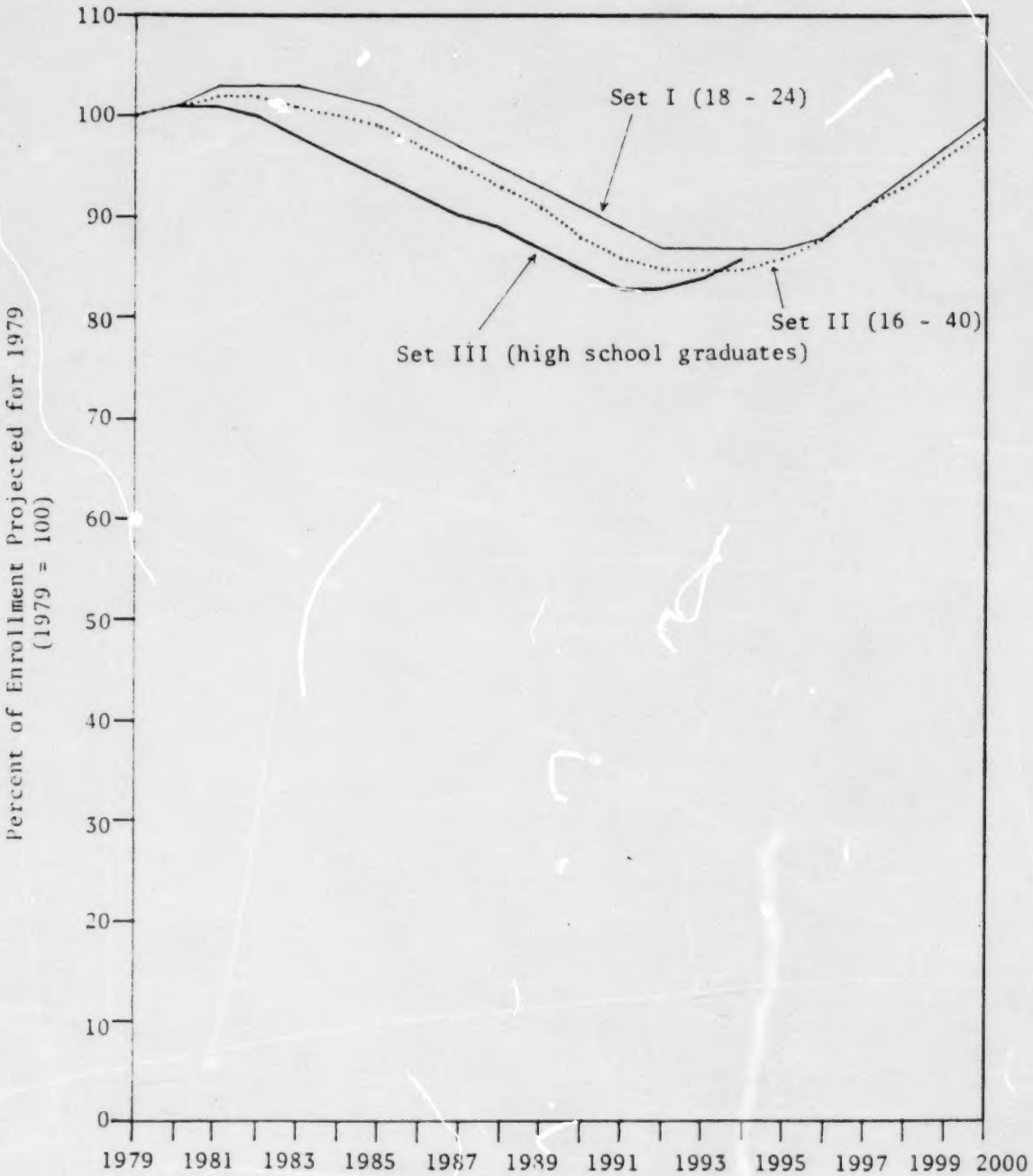
## ORIGINS OF THE PRESENT ENROLLMENT PROJECTIONS

Into the 1960s, enrollment projection responsibilities in California were fragmented. The three principal sources of enrollment projections for higher education were the Department of Finance, the Chancellor's Office of the California State Colleges, and the Office of the President of the University. In addition, the staff of the Coordinating Council for Higher Education on occasions prepared its own long-range projections for all four segments of higher education in order for it to conduct studies of the need for additional centers, basing its figures on those prepared by the Department of Finance.

During the late 1960s, the Office of the Legislative Analyst was sharply critical of some of these enrollment projections, especially those of the State University and Colleges. In 1968, for example, the Legislative Analyst objected to the tardiness of the State University in providing solid enrollment projections for the 1968-69 current expense budget. In 1969, the Analyst again criticized the State University with regard to the problem of "insuring reasonable accuracy in the [budget] projections" (Legislative Analyst, 1969,

FIGURE 7

RELATIVE CHANGE IN UNIVERSITY OF CALIFORNIA UNDERGRADUATE ENROLLMENTS FROM 1979 ACCORDING TO THREE PROJECTION MODELS (1979 = 100)




Source: Fishlow and Parker, 1980, p. 9.

pp. 337, 413-416). These difficulties led the Analyst to recommend to the Legislature that "the Coordinating Council for Higher Education study and make recommendations concerning the proper method of determining State College enrollment projections" (ibid., p. 337). Although legislative concern as expressed in budget hearings and in special interim hearings in 1968 and 1969 was focused primarily on the State University, it extended by its very nature to include the Community Colleges and the University of California as well.

Legislative interest in higher education enrollment projections was concentrated on two closely related issues: (1) the accuracy of annual enrollment projections upon which State support budgets are based, and (2) the matter of providing adequate facilities and operating support for all students seeking admission to public institutions of higher education.

During the 1960s, the Population Research Unit annually prepared what it termed "Phase I" enrollment projections for each of the segments. These projections were time series analyses based on grade progress ("cohort survival") ratios. Developing each projection began with the recording of the number of high school graduates by county for those counties that served as the primary service areas for the segments. This technique involved some 20 to 25 counties for the State Colleges, a somewhat different set of counties for the University, and the county or counties that were included in the district for each Community College. A college-going rate for each of these counties for each segment was then applied to the projection of high school graduates to produce a projection of first-time freshmen for each segment from that county. A figure for total full-time California freshmen was obtained by adding the projected number of transfer students, the number of new out-of-state and foreign students, and the number of students who were classified as continuing and returning freshmen. Grade progression ratios were determined to project the number of sophomores, juniors, seniors, and all graduate students.

During the early 1960s, the Population Research Unit prepared ten-year Phase I projections for full-time fall-term systemwide enrollments of undergraduate and graduate students in the State Colleges, systemwide undergraduate "headcount" enrollments in the University, and total ADA in grades 13 and 14 for all Community College districts combined. In the latter half of the decade, the Unit also prepared ten-year enrollment projections for each district for use in determining its capital outlay requirements. But the methods employed by the Unit were not appropriate for long-range projections of more than ten years; consequently, the Coordinating Council found it necessary to prepare its own long-range projections in its studies of the need for additional campuses and centers, which were conducted on a five-year cycle.

The Phase I projections of the Population Research Unit were based on recent cohort survival ratios obtained from the colleges and universities. Often the data received from the campuses came too late for timely projections of enrollments. Ordinarily these projections were begun in March or April, as soon as the campuses submitted their final enrollment reports for the preceding fall term. The planning processes of the senior segments did not allow for delays in these projections, therefore they used the Phase I projections, when available, only as a control or ceiling for their own work. Routinely, the State Colleges and the University had to develop their own Phase II projections for budgetary purposes. These Phase II projections for the senior segments utilized a somewhat different methodology in their development. They were prepared by each campus according to discernible past trends, local admission policies, estimated plant and program "capacity," gradual achievement of the 40/60 lower-division/upper-division ratio as prescribed by the 1960 Master Plan, and other related factors. The total of the figures developed by each campus became the systemwide total. The sum of the campus projections was not allowed to exceed the Phase I projections of the Department of Finance by any substantial margin, nor was it allowed to fall below that figure by a significant amount.

## LIMITATIONS OF THE METHODOLOGY OF THE 1960s

In 1966, the Director of the Department of Finance wrote to the Speaker of the Assembly and to the Director of the Coordinating Council indicating that the "cohort survival" technique used for enrollment projections of up to ten years was entirely unsuitable for longer-term projections (Hale Champion, 1966). He described the technique, which was based on estimated survival rates of high school graduates, class by class, as they proceeded through each public segment of higher education, as a relatively crude method for making ten-year projections that should not be used for much longer periods because of the necessary projections of high school graduates, which were also based on grade progression trends, among pupils who had not yet entered school.

In order to improve the enrollment projection techniques used by the Department of Finance, in February 1968 the Coordinating Council authorized its Director to enter into an interagency agreement with the Department of Finance in the amount of $74,200 in May 1968 to allow the Department of Finance to conduct a 20-month enrollment projection research project with funds from Federal Comprehensive Planning Grant monies received by the Council. The agreement was terminated in 1970 with the project incomplete.

Despite the Council's termination of its interagency agreement with the Department of Finance, much progress was made during the period of the grant toward the development of a new age/sex participation model. The Department was already engaged in preparing population projections by age and sex for each county as a part of its regular assignment. Through the research project the Department was able to obtain 1968, 1969, and 1970 data of age, sex, class level, and county of origin of students from all campuses of the three public segments. A computerized age/sex participation model was developed and compared with results from the former grade-progression model and actual enrollments. As the data base matured, the grade-progression model was abandoned in favor of the age/sex participation model. This model lends itself to the inclusion of other demographic factors such as income and ethnicity beyond age, sex, and county of origin; but base data that would be necessary to include these factors are still inadequate.

## CONCLUSION

The Legislature has clearly defined its intent that the Population Research Unit of the Department of Finance be the one official demographic unit in the State. While there was considerable dissatisfaction with its enrollment projections for higher education during the 1960s and early 1970s, the Unit has since developed a new methodology which is a substantial improvement and which lends itself to further refinements as improvements are made in the data base. Some problems with enrollment forecasts still persist, however, largely created by the segments of higher education. These problems are discussed in Chapter Three.

## CHAPTER THREE

## AN EVALUATION OF CALIFORNIA'S ENROLLMENT FORECASTS

In spite of criticisms of the Population Research Unit's enrollment projections during the 1960s and early 1970s, the Unit's projections have proven uncommonly accurate. Thus when Jerome Evans, Special Consultant to the Coordinating Council for Higher Education, examined its methods for projecting enrollments for higher education in California and compared budgeted FTE enrollment with reported enrollment in the California State Colleges and the University of California for the decade of the '60s, he found the forecasts accurate within 1 percent of the enrollments (Evans, 1970, p. 16).

Similarly, in a manual for state-level agencies on higher education enrollment forecasting (1974), prepared by the National Center for Higher Education Management Systems (NCHEMS) which describes various enrollment forecasting techniques and includes a summary of selected enrollment forecasting studies, it can be concluded that California appears to work with better projections than nearly all other states that reported on the accuracy of their forecasts. Many states reported accuracies that would not be acceptable in California. Among these ranges were New York at 0.4 to 3.5 percent, Minnesota at 0.08 to 6.88 percent, Illinois at 4 to 5 percent, Kansas at 1 to 6 percent, and Nebraska at 1.3 to 6.8 percent (Wing, 1974, pp. 76-83).

When examining the accuracy of current California enrollment forecasts, one would like to compare actual 1980 enrollments with the forecasts that were made in 1970 or 1975. Such a comparison would not be realistic, however, because of the effect Proposition 13 had on enrollments in the latter part of the '70s. Consequently, the best evidence of the accuracy of California's enrollment projections is that contained in these studies by Evans and NCHEMS.

## DEFICIENCIES IN CALIFORNIA'S ENROLLMENT FORECASTING PROCESS

While the headcount enrollment projections made by the Population Research Unit have been accurate, they are of limited value. The projections of headcount enrollments and annual weekly student contact hours (WSCH) made for the Community Colleges are important to budget formulation and represent the two important measures of

workload for that segment, but the headcount projections for the University and State University are of less use. Headcount enrollments are of social interest and represent workload for selected aspects of campus operations such as student services, but the Unit does not develop the major workload component--annual full-time-equivalent (FTE) enrollment projections--for the senior segments. Present practice allows the University and the State University to translate headcount enrollment projections into annual FTE which, in turn, drives their respective support budgets. It is this translation process that compromises the projections of the Population Research Unit.

In 1979, in conjunction with the Department of Finance and the Office of the Legislative Analyst, the Commission developed a common methodology to determine FTE graduate student status through the master's degree level in the University and the State University (California Postsecondary Education Commission, 1979). The methodology has not been implemented by the senior segments, the Department of Finance, nor the Legislative Analyst. Consequently, the translation of graduate headcount to annual FTE is not performed with comparable measures in the two systems. An earlier report of the Commission (1976), prepared in response to AB 557 (1975) attempted to develop "uniform standards and criteria for reporting actual and estimated student enrollment at the University of California and the California State University and Colleges." Its recommendations have not been fully implemented.

In order to be meaningful, enrollment projections for the senior segments should include projections of annual FTE which are derived with as much commonality as possible. The Legislature has assigned enrollment projections for public education to the Population Research Unit. The Unit should carry out its charge by developing projections of annual FTE for the senior segments. In turn, budget analysts within the Department of Finance should utilize these data and discontinue their use of segmental data which are developed through definitions that lack commonality.

The Population Research Unit has indicated its willingness to provide FTE projections for the senior segments if common definitions can be provided. This is not an easy task. The Commission has attempted to provide commonality of enrollment-related terms in the University and State University on two occasions--December 1976, and March 1979--without success.

The Population Research Unit's method for projecting enrollments in higher education has a second major deficiency: the base data are developed from historical enrollment trends determined by the number of students that campuses have admitted. They do not provide a total of statewide <u>demand</u> for higher education. Hence the extent

to which the State is actually meeting the needs of students who seek admission to higher education is not known. In other words, the Phase II projections which become the budget figures for the two public four-year segments reflect the segments' enrollment management and the extent to which each segment and campus satisfies what it believes is its demand for admission. For the Community Colleges, the same is true on a district-by-district basis. But any campus or segmental policy change that increases admission standards, holds enrollments to the level of the support budget, advances the application date, or restricts enrollments through other means appears as a reduction in "demand." As Mr. Evans noted, "segmental enrollment projections which reflect past enrollment trends and current admissions policies will quickly begin to reflect this distortion of demand. The true dimensions of enrollment demand will then become obscured and lost in the sight of those who must make crucial planning decisions" (Evans, 1970, p. 18).

Several examples illustrate the impact on projections of these enrollment management changes. One occurred after passage of Proposition 13. It is extremely unlikely that enrollment "demand" declined in consonance with Proposition 13; yet through enrollment management the public segments reduced their enrollments by 164,000 students (12.4 percent) so that their enrollments corresponded to their budget support for current expenses. For example, the Chancellor's Office of the Community Colleges conducted a survey of the impact of Proposition 13 on Community College programs, students, faculty, and finance between fall 1977 and fall 1978. All 70 districts responded. Some of the enrollment-related findings were:

- Nearly 6 percent of 61,000 courses and 13 percent of 125,000 course sections were eliminated statewide. Sixty-two percent of these changes were directly attributed to cutbacks related to Proposition 13.

- Average Daily Attendance (ADA) in credit courses declined by 7.5 percent.

- Noncredit ADA decreased by 26 percent.

- Headcount enrollment declined by 9 percent, whereas prior to the passage of Proposition 13, the Population Research Unit had forecast an increase of 3.5 percent.

- The number of inter-district attendance agreements decreased 17 percent, program agreements by 10 percent, and individual permits by 21 percent.

- Fifty-eight districts (84 percent) indicated Proposition 13 changed their ability to meet the intended Community College mission and functions (California Community Colleges, 1979, pp. 1-6).

Similarly, although all three segments have been thought to be adhering closely to a policy of accepting all qualified applicants who seek admission as undergraduates, this has not been the case for many years. Redirection programs, achievement of fluctuating enrollment ceilings for selected campuses, manipulation of application acceptance dates, special controls on spring term enrollments, and other factors have had a significant impact on restricting admissions and enrollments.

Fiscal year 1982-83 provides a prime example of how enrollments are often determined by economic and political decisions. The March 1982 Director's Report of the Commission notes that "the Governor's Budget poses an important policy issue about access to public postsecondary education . . . . [it] does not fund all undergraduate enrollments which can reasonably be expected in 1982-83" (p. 5).

The University of California has announced that reductions in its budget will result in 1,850 fewer students being admitted to undergraduate and graduate programs and 605 fewer students in medicine, nursing, and health sciences, while the Trustees of the State University have stated that "a plan to curtail enrollments will be necessary" (ibid.), since the Governor's Budget provides funds for fewer FTE students than are currently enrolled in the State University and 2,000 FTE fewer than the State University projects for the coming year. Moreover, the Governor's Budget provides for no growth in average daily attendance in the Community Colleges.

Coupled with these economic and political decisions at the State level, the federal budget proposes reductions in student aid, and the University and State University have announced fee increases for 1982-83 that will prevent some students from attending the University or State University without compensating financial aid. To further complicate the forecasting of 1982-83 enrollments, there is the economic/social issue of high unemployment. Commission staff have noted that a positive (.551) correlation exists between public college and university enrollments and unemployment. Present unemployment rates will thus tend to increase the number of students seeking postsecondary education at the very time that enrollment management decisions are limiting their admission.

Just as changes in fiscal resources cause a perturbation in enrollments that cannot be forecast by demographers, many current examples of enrollment management tend to increase enrollments in what is perceived as a declining market. Thus Kirk West, executive vice

president of the California Taxpayers Association in Sacramento, writing for the Association's Cal-Tax News, criticized student recruitment by the University in these words: "The University of California, with at least two underutilized campuses, advertises that an out-of-state admissions applicant can become a resident within a year and pay in-state prices for three years" (1980).

In the California State University, between fall 1978 and fall 1979, full-time-equivalent freshman enrollments increased by 6.1 percent systemwide, and many campuses remained essentially constant in FTE freshmen, while some underwent a decline. But San Diego State University increased its freshmen FTE by over 25 percent. Immediately, other institutions in the San Diego area began to voice concerns about overzealous recruiting efforts by San Diego State.

Two policy changes in the Community College system have occurred which may also be classed as enrollment management. One comes from legislative mandate. AB 1639 (1981) required that "statewide ADA computed for apportionment purposes shall not exceed 1.025 times the 1980-81 fiscal year average daily attendance." This requirement imposed a 2.5 percent enrollment ceiling on the Community Colleges for 1982-82, with the statewide allocation distributed among the districts by the Chancellor's Office. As noted earlier, the State's budget for 1982-83 provides for no enrollment growth at all.

Second, State and local funding is based on total WSCH enrollments, and for many years, WSCH enrollments have been based on census week figures using the fourth week of the fall term which is referred to as the "positive attendance week." Within the past five years, the Community Colleges have begun to offer many courses for credit in a mode other than the semester or quarter format, including concentrated weekends, one-week, one-day, and other short-term courses. As an illustration of their popularity, these less-than-full-term day courses have increased from 3.1 percent of fall WSCH in 1976-77 to 5.1 percent in fall 1979-80 and 6.3 percent in the spring 1979-80. For evening classes, they were 3.3 percent for fall 1976-77, 4.6 percent for fall 1979-80, and 5.4 percent for spring 1979-80. The Community Colleges are evidently serving their communities better through these flexible class formats, but this policy change is not well known to persons involved in statewide planning, budget planning, or enrollment forecasting and is affecting total WSCH enrollment projections in an undeterminable manner.

As a final example, in 1979 the University of California established a Joint Planning Committee as a beginning step toward a new planning process. The initial report of this Committee concentrated on two items, (1) enrollments, and (2) maintenance of quality. One of the three main objectives of the strategic planning process was "to improve access and avoid or mitigate any decline in the number of

students receiving a University education" (Joint Planning Committee, 1980, p. 5). The Committee observed that rather than facing a slower-than-planned growth rate, the University faced the possibility of an actual decline in enrollments. It identifies several possible sources of enrollment increases which singularly or in combination could serve to mitigate enrollment decreases. These enrollment-building strategies centered around increasing outreach and recruitment of high school students with increased emphasis on minority students, simplifying the eligibility criteria for undergraduate admissions, reducing unwarranted attrition, increasing the number of transfer students, reconsidering ways to accommodate part-time students and to encourage their attendance, and encouraging campus and faculty efforts to increase graduate and professional enrollments, particularly among women and minorities. Such examples of enrollment-building strategies tend to serve California by meeting total statewide demand for higher education rather than merely reflecting past enrollment trends. However, they represent changes in policies and procedures which are likely to have an impact on enrollments not only in one segment but in all segments.

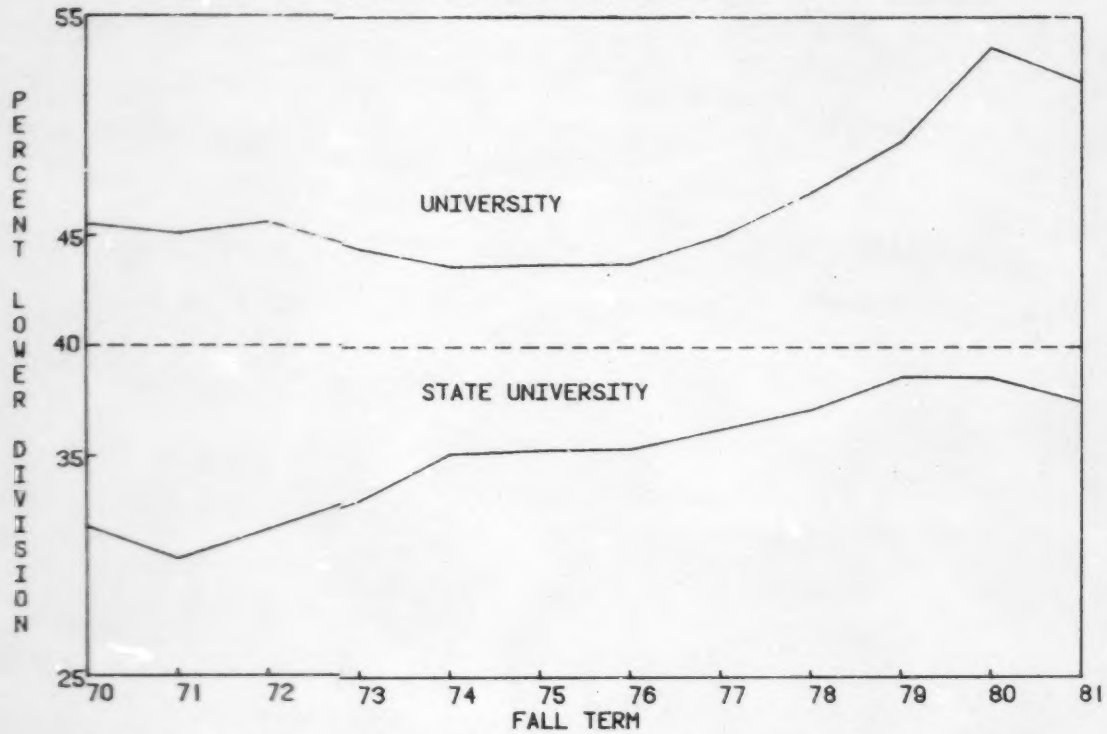
## IMPACT OF SEGMENTAL ACTIONS ON ENROLLMENTS IN OTHER SEGMENTS

It is no longer possible for one segment of higher education to assume that its concerns stop at the point where it has met what it believes to be its own immediate admissions obligations. Independent actions by one segment reflect throughout all of higher education, and its actions should reflect the active concern and cooperative efforts of all segments.

A glaring example of what can happen when one segment acts independently is seen in the changing distribution of lower-division students among the Community Colleges, the State University, and the University. One of the fundamental principles of the 1960 Master Plan for Higher Education in California was contained in a recommendation that called for the two public four-year segments to reduce the proportion of their lower-division students to 40 percent by 1975 (Master Plan Survey Team, 1960, p. 59). At the time the Master Plan was written, the percentage of undergraduates in the lower division for both segments was estimated to be 51 percent. It was estimated that this recommendation would result in the transfer of some 40,000 lower-division students to the Community Colleges by 1975. The Coordinating Council for Higher Education vigorously pursued this recommendation in order to build viable transfer programs in the Community Colleges, and the State University reduced its portion of lower-division students below the

FIGURE 8

LOWER-DIVISION STUDENT ENROLLMENT EXPRESSED AS A PERCENT OF TOTAL UNDERGRADUATE ENROLLMENT, 1970-1979




Source: California Postsecondary Education Commission.

recommended proportion in the late 1960s, reaching a low point of 30 percent in 1971. Since that time, as Figure 8 shows, the portion has been increasing but remained slightly below 40 percent in 1979. The University, however, has never achieved the goal established in the Master Plan. The University accomplished its lowest proportion in 1974--slightly under 45 percent--but its new recruitment policies reversed this trend in 1976 and the proportion climbed steadily to 53.6 percent in 1980, before dropping to 52.0 percent in 1981.

These changes in admissions policies of the senior public segments represent a potential "loss" of over 20,000 transfer students from the Community Colleges. The effects are many:

1. The faculties in the University and State University are teaching more lower-division courses than they are accustomed to. A critical variable for any institution is the fit of its faculty to its students.

2. Lower-division instruction becomes more expensive to the State in a time of frugality.

3. Policy changes of this nature without the necessary communication complicate the problem for persons responsible for enrollment forecasting.

4. The results of these policy changes impinge on the planning process for higher education in California.

5. Perhaps most important, Community College transfer programs are becoming less viable. Gerald R. Kissler of UCLA's Planning Office reported to the Regents at their meeting in October 1980:

> Community College transfer programs are getting smaller and are producing fewer transfer students. Therefore, both CSUC and UC have the capacity to admit more students directly from high school. Unfortunately, to do so will also produce a downward spiraling effect on the size and nature of transfer programs in the Community Colleges. For, as fewer UC and CSUC eligible high school students enter the Community Colleges, the best students are removed from the transfer classes. This lowers the level of competition in the Community College classroom, lowers the level of text that can be used, the amount of material that can be covered, and the norm for grading purposes (pp. 6-7).

Frank Bowen and Lyman Glenny cautioned in a 1980 report to the Commission that the Community Colleges should not lose their transfer function merely as a result of competition for students:

> The Master Plan's suggested ratio of 60 percent upper-division students to 40 percent lower-division ones appears to have fallen into desuetude. Cause and effect are difficult to assess, but--to state an extreme case--if the Community Colleges are to lose their transfer function, the loss should not be simply an unintended casualty of institutional competition for students (1980, p. 57).

## LACK OF COMMUNICATION

No group or agency can provide useful enrollment projections for planning unless the segments and the agencies involved communicate fully and promptly regarding changes in policies and procedures which are likely to affect each other's estimates and projections. California's current system of preparing enrollment projections has given little encouragement to such consultation. The Coordinating Council for Higher Education and the California Postsecondary Education Commission have from time to time convened an Interagency Enrollment Projection Committee composed of representatives of their staffs, the segments, the Department of Finance, its Population Research Unit, the Office of the Legislative Analyst, and the Department of Education. The last such committee was organized in 1979. A review of the minutes of the committee indicate that most of its time was spent in discussions of methodology and the data base of the age-sex-county participation model developed by the Population Research Unit. Nevertheless, neither this nor any other model will produce satisfactory results when segmental policies are fluid.

It may be an exercise in futility to suggest the creation of another committee on the topic, but some agency such as the Commission needs to accept the responsibility to see that necessary communication on policy changes occurs. Further, the Commission itself needs to review certain policy changes, such as the move away from the 40/60 lower division/upper division ratio of students in the senior segments, before such action is taken.

## CONCLUSION

The enrollment projections prepared by the Population Research Unit of the Department of Finance are reasonably accurate reflections of enrollment trends. Both headcount and FTE or ADA enrollment projections are necessary elements of planning, and presently the Population Projection Unit provides these elements for the Community Colleges. The Unit has indicated its willingness to provide more than just headcount enrollment projections for the four-year segments, providing they have the necessary definitions that will translate headcount to FTE. The Commission has made recommendations on commonality of definitions for the University and the State University, but these definitions are not used by either four-year segment. Until these or new definitions are adopted by the segments, the Population Research Unit has to limit its projections to headcount only, despite the fact that FTE projections are essential to planning.

Moreover, these projections are rooted in participation rates which reflect admissions policies of the campuses and districts. The total statewide demand for higher education remains unknown. Because enrollment management at the campus and segmental levels determines how many students are admitted, it appears that enrollment management rather than educational demand will continue to determine how many residents of California are served by public higher education.

Several of the enrollment-building strategies identified by the American Council on Education and described on page 15 as potential offsets to declines in the college-age population are either under study in California or are being implemented in a variety of ways by the segments. Implementation of some of these strategies by only one segment will be reflected in changes in enrollment in the other segments. It is important that these changes in policy be known by the Population Research Unit and the Commission well in advance of their implementation; otherwise, they will not be reflected in planning or in enrollment forecasts. A forum that would identify these policy changes and establish necessary communication among appropriate agencies is needed. Previous interagency enrollment projection committees have not been effective in establishing essential communication among the segments and agencies involved. Perhaps a high-level committee, such as the Statutory Advisory Committee, could identify and discuss policy changes that will influence enrollments, after which a second committee composed of technical personnel could translate the effect of these changes in policy into predictable changes in enrollments.

# CHAPTER FOUR

## ENROLLMENT PROJECTIONS AND ENROLLMENT DEVELOPMENT

The basic demographic data on past and anticipated higher education enrollments in California and the nation are, on the whole, well in hand. For example, we know that:

| In the Nation | In California |
|---|---|
| College enrollments increased by more than 3.7 million students from 1970 to 1981--a 43 percent increase. | College enrollments increased by nearly 920,000 students from 1970 to 1981--a 92 percent increase. |
| Enrollments increased in every major sector of postsecondary education: public, private, two-year, and four-year institutions. | Enrollments increased in every segment of postsecondary education: public, private, two-year, and four-year institutions. |
| During the decade of the 1960s, degree-credit enrollments more than doubled--from 3.6 million to 8.0 million students. | During the decade of the 1960s, enrollments more than doubled--from 504,555 to 1,049,410 students. |
| During the decade of the 1970s, degree and non-degree credit enrollments increased from 8.6 million to 11.6 million students. | During the decade of the 1970s, degree and non-degree credit enrollments increased from 1.1 million to 1.7 million students. |
| The rate of enrollment increase dropped from 120 percent in the 1960s to 40 percent in the 1970s. | The rate of enrollment increase dropped from 108 percent in the 1960s to 86 percent in the 1970s. |
| The peak year for the 18- to 21-year-old population occurred in 1979. | The peak year for the 18- to 21-year-old population occurred in 1980. |
| The peak year for the 18- to 24-year-old population occurred in 1981. | The peak year for the 18- to 24-year-old population (2.9 million) is 1982. |

| | |
|---|---|
| Traditional college-age young people aged 18 to 21 account for less than half of total headcount college enrollment. | Traditional college-age young people aged 18 to 21 account for 52 percent of total headcount college enrollment. |
| College-going rates are up for women of all age groups and for men over age 25. Rates for men aged 18 to 24 are down. | College-going rates are up for women of all age groups and for men over age 25. Rates for men aged 18 to 24 are down. |
| The average age of students is increasing. | The average age of students is increasing. |
| Between 1980 and 1990, the college-age population aged 18 to 24 will decrease by 14.6 percent. The low point (-15.7 percent) will not be reached until 1992. | Between 1980 and 1990, the college-age population aged 18 to 24 will decrease by 15 percent. The low point (-15.5 percent) will not be reached until 1992. |
| The decrease in the college-age population will probably produce a decline in FTE enrollments of 9.2 percent. | No estimates of decline in FTE enrollments as a result of the decline in the college-age population have been made by the Population Research Unit, but headcount enrollments are expected to decline by only 2.8 percent between 1985 and 1992 and then slowly increase, exceeding their 1985 high by 1997. |

Many other characteristics of national and State enrollment data could be cited, but they would also point to the fact that State and national enrollment and enrollment-related characteristics appear to follow similar trends for the most part.

California's enrollment forecasts prepared by the Population Research Unit and displayed in Chapter Two are not the doomsday forecasts that one often reads about for other states, but they do not indicate the extent to which full-time-equivalent enrollments may fall in California. These FTE enrollments will undoubtedly drop more than headcount enrollments--and it is FTF enrollments rather than headcount enrollments that drive the State's budget formulas for higher education.

These enrollment forecasts assume that no changes will take place in the economic, social, and political decisions made by students, their families, institutions and segments, federal and State govern-

ment, and the private sector affecting enrollments and admissions. But new sources of enrollment such as those mentioned in Chapters One and Three will naturally affect these rates. Through them, the segments can better serve the people of California as well as avoid or mitigate their anticipated headcount enrollment decline and lessen the impact of the FTE decline. Among the strategies that have already been identified by the segments as potential sources for new students are the seven described in the following sections.

## INCREASING STUDENT RETENTION DURING THE HIGH SCHOOL YEARS

Colleges and universities draw most of their new students from among high school graduates, but the proportion of students completing high school has been declining. Data from the Department of Finance indicate, for example, that the number of California twelfth graders as a proportion of California 18-year olds has declined from 88 percent in 1969 to 78 percent in 1977.

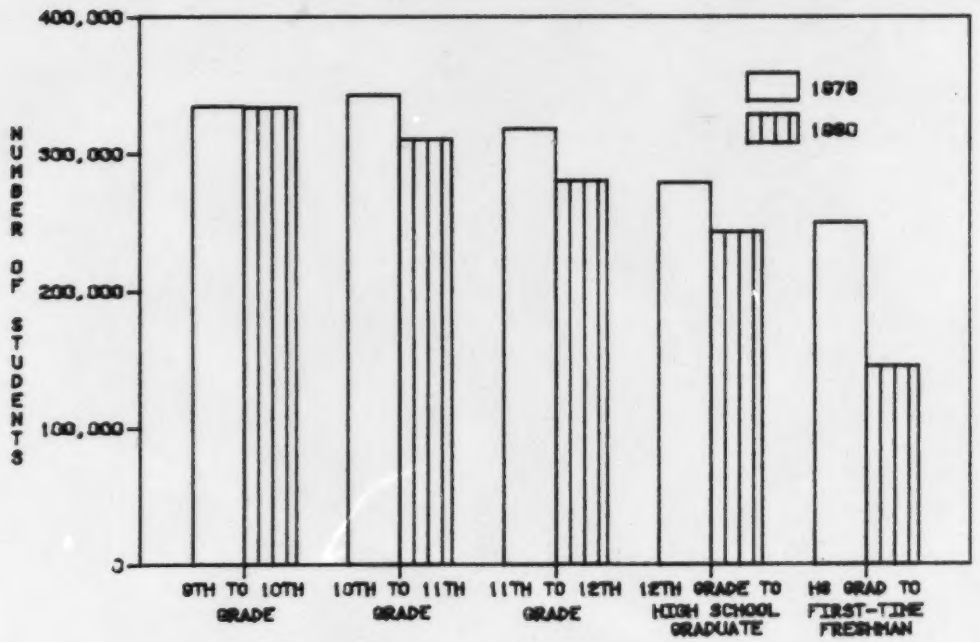
Figure 9 depicts the dropout rate in California for each of the high school years and between high school graduation and freshman enrollment in higher education. As can be seen, little attrition occurs between the ninth and tenth grade, but it becomes increasingly severe thereafter, as a number of tenth graders fail to enroll as eleventh graders and eleventh graders fail to enter twelfth grade. This attrition is particularly high among Blacks, although all groups appear to be experiencing high attrition between tenth grade and high school graduation. The higher education community needs to go beyond the recruitment of twelfth graders and work with youth at much earlier ages in order to help them attain eligibility for admission. Outreach programs aimed at students in junior high school or even earlier grades deserve increased attention.

## INCREASING THE HIGH SCHOOL GRADUATION RATE OF HIGH SCHOOL SENIORS

As Figure 9 shows, the potential pool of college students shrinks during the twelfth grade, since fewer than nine out of ten high school seniors graduate from high school. An increase in the high school graduation rate of young people would not only increase the pool of possible college entrants but also respond to legislative concern about their underrepresentation in higher education. If the graduation rate of twelfth graders were brought up to 90 percent, the pool of possible college entrants would increase by 52

FIGURE 9

PUBLIC HIGH SCHOOL GRADE-LEVEL ENROLLMENTS AND GRADUATIONS AND FIRST TIME FRESHMAN ENROLLMENTS IN THE PUBLIC SEGMENTS OF CALIFORNIA HIGHER EDUCATION, 1979-80 TO 1980-81




Source: California Postsecondary Education Commission.

percent which would offset twice the forecasted enrollment decline in California higher education.

## INCREASING THE COLLEGE-GOING RATE OF HIGH SCHOOL GRADUATES

Currently, about 58 percent of recent graduates of California public high schools enroll in the various public segments of higher education. These percentages from 1974 through 1980 are shown in Table 5. As it shows, California's total college-going rate for public higher education increased by 4.0 percentage points over this period. If the California college-going rate were to increase between 1985 and 1992 by approximately 2.8 percentage points, it

TABLE 5

STATEWIDE COLLEGE-GOING RATES FOR
RECENT CALIFORNIA PUBLIC HIGH SCHOOL GRADUATES
1974-1979

| Year | Number of Graduates | Percentage of Graduates Enrolling as Freshmen | | | |
|---|---|---|---|---|---|
| | | UC | CSU | CCC | Total |
| 1974 | 289,714 | 5.1% | 7.6% | 41.3% | 54.0% |
| 1975 | 293,941 | 5.3 | 7.5 | 43.1 | 55.9 |
| 1976 | 289,454 | 5.1 | 7.8 | 41.7 | 54.6 |
| 1977 | 285,360 | 5.2 | 8.0 | 43.3 | 56.5 |
| 1978 | 283,841 | 5.5 | 8.4 | 41.4 | 55.3 |
| 1979 | 278,548 | 5.8 | 8.7 | 42.1 | 56.6 |
| 1980 | 270,971 | 6.0 | 9.0 | 43.0 | 58.0 |

Source: California Postsecondary Education Commission Report 81-3, p. 6, 1981.

would offset the anticipated enrollment declines in the segments. Among the programs that would help increase this rate are increased outreach to students at an earlier age, equal opportunity programs and services, and expanded financial aid.

As Table 3 in Chapter One noted, the American Council on Education estimates that if colleges and universities nationally succeed in raising the college-going rate of the 18- to 24-year-old population by 2 percentage points from 25.3 to 27.3 percent, the projected national enrollment decline would be offset.

## INCREASING CREDENTIALING BY TESTING

According to the GED Testing Service, the number of persons who receive educational credentials through formal external testing is increasing at a phenomenal rate. In 1951, the total volume of GED testing was 25,584 persons. By 1978, the number had increased to 674,724. Approximately 60 percent of those persons tested meet the GED standard and are awarded credentials; approximately 60 percent of those persons receiving credentials plan further study, and about two-thirds of these carry out their plans. Nationally, it is estimated that 100,000 high school drop-outs enter college annually by this route. The number is expected to increase by one-third by

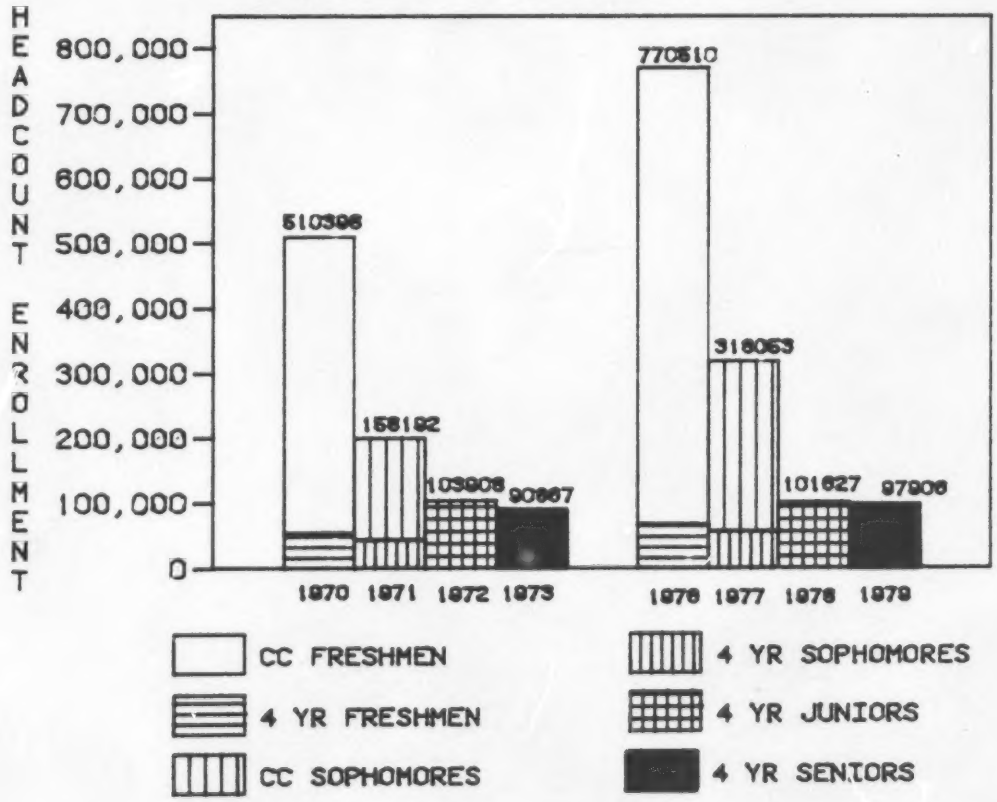
1990. No data for California are available, but one would expect that the State will follow national trends.

## IMPROVING RETENTION IN COLLEGE

Figure 10 shows the number of students enrolled in California's public segments of higher education in each of the four undergraduate years from fall 1970 through 1973 and fall 1976 through 1979. The drop during each of these years--for example, from 770,510 fresh-

FIGURE 10

SEQUENTIAL ENROLLMENTS BY STUDENT LEVEL
AT ALL PUBLIC SEGMENTS
FALL 1970 THROUGH FALL 1973 AND
FALL 1978 THROUGH FALL 1979




Source: California Postsecondary Education Commission.

men in 1976 to 318,053 sophomores in 1977 and to 101,627 juniors in 1978--stemmed in part from students completing their educational objectives in one or two years. But at least part represents students' dropping out before they achieve their goals. Efforts to increase the retention of students could have substantial impact on future enrollments. Some attrition is of course both inevitable and desirable, but some is avoidable and unfortunate. Better academic preparation, supplemental instruction, increased utilization of learning centers, counseling, guidance, and changes in curricula that take into account different educational objectives and backgrounds of students are some of the factors that may increase the retention rate of students. A small increase in the rate of retention will more than offset projected declines in enrollments.

## ENCOURAGING TRANSFER FROM COMMUNITY COLLEGES TO UNIVERSITIES

Because so large a proportion of California's college freshmen and sophomores attend Community Colleges, a particularly important factor in improving retention during college is to assure smooth articulation between Community College programs and upper-division programs in the University and State University. The number of Community College students who transfer to either of the senior segments has declined almost continuously since the mid-1970s. In fall 1981, only 4,778 transferred to the University, while 30,026 transferred to the State University (California Postsecondary Education Commission, 1982b, p. 4). Better counseling and improved information about financial aid available to transfer students could increase these numbers in coming years.

## INCREASING ADULT ENROLLMENTS

Although California's traditional college-age population of 18- to 24-year olds is projected to decline by 15.5 percent between 1982 and 1992, the young adult population of 25- to 34-year olds will continue to grow until it is nearly double the size of the 18- to 24-year-old population by the early 1990s. Between 1980 and 1990, according to the Population Research Unit, the number of persons in their 30s will increase by 20.6 percent; those in their 40s will jump by 50.7 percent; those between 50 and 64 will grow by 5.7 percent; and those aged 65 and over will rise by 27.3 percent. The number of persons in the 25-50 age range will expand by more than 2

million--an increase 400 percent greater than the projected decline in the college-age population--and if current college-going rates of this age group could be increased by only a small amount, it would yield substantial numbers of students.

In recent years, women have outnumbered men increasingly in collegiate enrollments and among degree recipients, particularly at Community Colleges and the State University. If the enrollment rate of men could be brought up to the current level for women, the number of new students would be more than twice the anticipated shortfall in 1992.

## CONCLUSION

Stress on any one of these enrollment development strategies by one segment of higher education will naturally influence enrollments differently in the other segments. But through cooperative action on these and other strategies, California's institutions of higher education can avoid detrimental effects on each other's enrollments and can benefit the State by increasing the proportion and the number of citizens receiving postsecondary education. Nonetheless, in the final analysis, college and university enrollment levels will be determined largely by economic, social, and political issues--and by the fiscal condition of the State--as well as by student demand.

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